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objects display information and action objects perform a predefined action, (for example, collect data, validate, generate more weaves dynamically, etc.), on activation by clicking the intersections or the ribbons. The ribbons themselves are grouped based on their class, (for example, in the symptom group each ribbon in the group represents a symptom). Ribbon groups or individual ribbons may be involved in more than one weave.

The data which the ribbons represent may refer to a specific entity to be managed such as a patient, a ward, an X-ray facility, etc., or be drawn from a general knowledge base such as a knowledge base describing the relation between a symptom and a disease, the time and resources required for a particular X-ray examination, etc. These are referred to as the subject and the knowledge base respectively. Information about the subject may be drawn from the subject's file (for example, by electronic transfer of a patient's pre-existing records in another system) or entered by user interaction with the system. The clinical processes, the data involved and how they are presented in the DataWeaver map will now be described with reference to Figures 6 to 10.

The full weave map illustrated in Figure 6 is the end result of the patient-physician encounter, which commences with entry of the patient into the clinic (900) and registration in the administration section (910, 920). An administrative user registers the patient by recording within the system the demographic registration information (for Epidemiological purposes) for a new patient, which are stored for later use and documentation of that specific patient in the clinic. The administrative user interviews the patient/responsible party and obtains details of the presenting symptoms along with other condition facts, such as known allergies, drug sensitivity, current medication, pregnancy, etc. (910, 930, 940). Ribbons representing the presenting symptoms are generated in the weave map and the presenting symptoms are attached to the ribbons from the list which is searched by the user using key words. A preliminary disease/probability list is then created.

5 The patient/physician encounter then moves to the second phase involving initial diagnosis of the patient's complaint which is represented in area 1000 of the weave map. Based on further discussion with the patient a clinical user acquires and evaluates all the personal information, symptoms, signs, images (scans), genetic and environmental factors which are interactively stored (1010, 1020, 1030, 1040). The supporting knowledge base aids in prompting for related signs and symptoms. Allowance is made for hierarchical groupings of symptoms, if that is useful or needed. For example, both the height and thickness of disease ribbons (1040) indicate the relative probability of the disease.

10 A diagnosis suggested by the system may be overridden by the clinician. The weaves 1030 and 1130 consist of intersections that show a particular sign or symptom is relevant to the disease. From the knowledge base, all symptom groups where the presented main symptoms are the leading symptoms for some specific diseases are chosen. The symptom group is classified by disease or disease group where system cross-relationships should be considered. Any

15 disease may be clicked to view its corollary signs and symptoms and other relevant factors. The disease ribbon can be right-clicked to make it as the diagnosis. Question marks will appear at the points of overlap of the ribbons in a particular weave (not shown), where the relevant symptoms associated with each disease group have not yet been checked. The weave map, acting as it does in this case as a GUI for the knowledge base, acts as a prompt to aid the physician in asking the appropriate questions to find symptoms which may be indicated according to the disease assumptions. The visualisation of cross

20 relationships between the observed symptoms, possible diseases and corollary symptoms are illustrated by the weave in area 1000.

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More considerations are introduced to ascertain the diagnosis, including the patient's personal record (social and environmental factors and genetic predisposition, treatment history, drug side affects and other physical examination data). A clear pathway down a diagnostics column at the

30 diagnostic/symptoms intersections indicates the symptoms are present. (If the

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symptom is not needed for the diagnosis, the weave goes under the diagnosis ribbon indicating that it is not relevant).

Area 1200 of the weave map represents the process of consultation of research literature, past cases and other peers (1220). Various relevant literature and past cases are retrieved from the databases. The patient is also educated regarding the disease (1230) and relevant information to be handed out to the patient is retrieved from the database.

Once a diagnosis has been made (1360), the disease ribbon can be clicked to retrieve a list of treatment schemes available for that disease from the database. Each treatment scheme can be analysed dynamically against the patient conditions such as allergies, pregnancy, cost or patient preferences to choose the optimum strategy (1210, 1320, 1330 and 1340). Patient education on treatment and rehabilitation continues (ribbon 1230 extended to area 1354). Once a treatment plan is selected (1330), the individual items can be modified for dosage and administration mechanisms, etc. All the changes will be transmitted back to the patient records. Administration of treatment (therapies represented by three ribbons 1310) and ribbons representing a drugs and therapies daily plan are generated (1410, 1420 and 1430 in the monitoring area 1400). If a case is classified as of research interest, parameters and conditions to be monitored are captured for clinical research.

Weaves can be programmed to interact in different ways. Each weave is built interactively from a few ribbons and intersections to the complete set required. With any ribbon group, right clicking any ribbon opens a dialogue box that can add new ribbons by a tree-structured, keyword searchable list of possible additions. Right-clicking an intersection opens a dialogue box by which the user may alter those of that intersection's properties for which a user's profile specifies permission, whereas left clicking allows an authorised user to read the information represented by that intersection.